Attachment 2
Section C
Description or Specifications

Work under this contract shall be performed in accordance with the following specifications, Statement of Work:

C-1.0 GENERAL RETICLE DESCRIPTION

C-1.1. The Integrated Circuit Fabrication Facility (ICFF) at SPAWAR Systems Center, San Diego, (SSCSD) fabricates integrated circuits. To transfer patterns, which define integrated circuit process steps onto wafers, a lithographic process is used. A reticle or photomask is a quartz plate on which these patterns appear as dark areas. A pattern is transferred by shining light through this photomask onto a wafer coated with a photosensitive material. About 8 to 15 photomasks are required to fabricate a single integrated circuit.

C-1.2. RETICLE SPECIFICATIONS

C-1.2.1. Reticles for GCA XLS Model 7300 I-line Stepper

C-1.2.1.1. The data will be provided by SSCSD in GDSII format at 1X scale, right reading, normal tone, and must be converted by the vendor into the appropriate data format for reticle generation.
C-1.2.1.2. The CAD grid size will be 0.05 microns.
C-1.2.1.3. Access to a contractor owned electronic (preferred) site (including use of software such as Maskview™ required to enter the site and view the data) or other means to review the data after conversion will be provided to allow for SSCSD approval prior to reticle generation.
C-1.2.1.4. The reticle shall be of the 4X reduction type for use in a GCA XLS model 7300 i-line stepper, as described in GCA Document 081249G1 Rev. 2, "XLS Reticle Application Handbook."
C-1.2.1.5. The reticle substrate shall be quartz, measuring 5 x 5 inches, and shall be 0.090 inches thick.
C-1.2.1.6. The reticle shall have an antireflective chrome coating.
C-1.2.1.7. The reticle plate flatness shall be less than or equal to 2 microns.
C-1.2.1.8. All die on the reticle are to be inspected and compared with the GDSII data.
C-1.2.1.9. Die registration shall be measured at a minimum of 4 places per reticle by using marks provided in the data. Errors in placement shall be less than ±0.25 microns with a maximum range of 0.25 microns.
C-1.2.1.10. Level to level registration shall be less than ±0.25 microns with a maximum range of 0.25 microns.
C-1.2.1.11. Critical dimension tolerance shall be less than ±0.25 microns with a maximum range of 0.25 microns.
C-1.2.1.12. Barcode will be generated by the vendor.
C-1.2.1.13. Defects: Any defects larger than 1.0 micron on the reticle shall be repaired free of charge.
C-1.2.1.14. Upon request, the photomask plate shall be fitted with a double sided pellicle of proper size to fit the reticle and with a film for use with I-line radiation (e.g. Inko part number GCA108.6*7.7-NCF-0-S or equivalent).
C-1.2.1.15. At the discretion of SSCSD, the reticle will be returned to the vendor, the old pellicle removed, and a new double sided pellicle fitted such as Inko part number GCA108.6*7.7-NCF-0-S or equivalent.

C-1.2.2. Reticles for Karl SUSS MA150CC Aligner

C-1.2.2.1. The data will be provided by SSCSD in GDSII format at 1X scale, right reading, normal tone, and must be converted by the vendor into the appropriate data format for mask generation.
C-1.2.2.2. The CAD grid size will be 0.5 microns.
C-1.2.2.3. Access to a contractor owned electronic (preferred) site (including use of software such as Maskview™ required to enter the site and view the data) or other means to review the data after conversion will be provided to allow for SSCSD approval prior to mask generation.
C-1.2.2.4. The mask shall be of the 1X master type for use in a Karl SUSS MA150CC Aligner.
C-1.2.2.5. The mask substrate shall be quartz, measuring 7x 7 inches, and shall be 0.150 inches thick.
C-1.2.2.6. The pattern shall be comprised of an antireflective chrome coating.
C-1.2.2.7. The mask plate flatness shall be less than or equal to 2 microns.
C-1.2.2.8. All die on the mask are to be inspected and compared with the GDSII data.
C-1.2.2.9. Die registration shall be measured at a minimum of 4 places per mask by using marks provided in the data. Errors in placement shall be less than ±0.25 microns with a maximum range of 0.25 microns.
C-1.2.2.10. Level to level registration shall be less than ±0.25 microns with a maximum range of 0.25 microns.
C-1.2.2.11. Critical dimension tolerance shall be less than ±0.50/0.20 microns with a maximum range of 0.50/0.25 microns depending upon the CLIN ordered.
C-1.2.2.12. Defects: Any defects larger than 2.0 microns on the mask shall be repaired free of charge. Defect density shall be less than 2 per square inch.

C-1.2.3. Reticles for Canon FPA-3000EX4 Stepper

C-1.2.3.1. The data will be provided by SSCSD in GDSII format at 1X scale, right reading, normal tone, and must be converted by the vendor into the appropriate data format for reticle generation.
C-1.2.3.2. The CAD grid size will be 0.05 microns.
C-1.2.3.3. Access to a contractor owned electronic (preferred) site (including use of software such as Maskview™ required to enter the site and view the data) or other means to review the data after conversion will be provided to allow for SSCSD approval prior to photomask generation.
C-1.2.3.4. The reticle shall be of the 5X reduction type for use in a Canon FPA-3000EX4 DUV stepper, as specified in Canon's FPA-3000 EX4 Reticle Guide (Part #BY8-6189-0E0)
C-1.2.3.5. The reticle substrate shall be quartz, measuring 6 x 6 inches, and shall be 0.250 inches thick.
C-1.2.3.6. The reticle shall have an antireflective chrome coating.
C-1.2.3.7. The reticle plate flatness shall be less than or equal to 2 microns.
C-1.2.3.8. All die on the reticles are to be inspected and compared with the GDSII data.
C-1.2.3.9. Die registration shall be measured at a minimum of 4 places per reticle by using marks provided in the data. Errors in placement shall be less than ±0.25 microns.
C-1.2.3.10. Level to level registration shall be less than ±0.25 or ±0.15 microns as specified in CLIN ordered.
C-1.2.3.11. Critical dimension tolerance shall be less than ±0.125 or ±0.050 microns as specified in CLIN ordered.
C-1.2.3.12. Critical dimension range shall be less than 0.125 or 0.075 microns as specified in CLIN ordered.
C-1.2.3.13. Barcode will be generated by the vendor.
C-1.2.3.14. Plate Defects: Any defects larger than 1.0 micron on the reticle plate shall be repaired free of charge.
C-1.2.3.15. Upon request, the photomask plate shall be fitted with a double sided pellicle such as Micro-Lithography Incorporated part number CAN56-602-1017 or equivalent.
C-1.2.3.16. At the discretion of SSCSD, the reticle will be returned to the vendor, the old pellicle removed, and a new double sided pellicle fitted such as Micro-Lithography Incorporated part number CAN56-602-1017 or equivalent.

C-2.0 PERFORMANCE

C-2.1. A review of the converted data such as access via Maskview™ shall be provided within 5 working days of data delivery from SSCSD.

C-2.2. The first 2 reticles of an order shall be shipped to SSCSD within 5 working days after approval of the converted data by SSCSD. All reticles within the order shall be shipped to SSCSD within 10 working days after approval of the data by SSCSD.

C-2.3. Replacements for defective or broken reticles must be shipped to SSCSD with 3 working days after the vendor is notified of the problem.

C-3.0 REPORTS, DATA, DELIVERABLES

C-3.1. The vendor shall provide all inspection, centrality, defect maps, and reports related to each reticle shipped.

C-3.2. Job deck and array plots shall be delivered to SSCSD via FAX and approved prior to photomask generation.

C-4.0 GOVERNMENT FURNISHED INFORMATION

C-4.1. SSCSD will provide the data required to define the patterns on each reticle ordered.